

Appendix E. Sources and Definitions

| Variables | Definition | Source |
|---------------------------|--|--|
| Human trafficking inflows | Reported incidences of human trafficking inflows. Score 0 (no flows) and 5 (very high flows). | UNODC (2006) |
| Legal prostitution dummy | Dummy indicating whether or not a country allows prostitution. 1 being legal and 0 otherwise. | US Dept. of State (1999-2008) |
| Legal brothel dummy | Dummy indicating whether or not a country allows brothel/pimping. 1 being legal and 0 otherwise. | US Dept. of State (1999-2008) |
| Rule of law | Index in the range of -2.5 to 2.5, with higher values corresponding to better outcomes. | Kaufmann et al. (2009) |
| (log) population | Log of a country's total population. | World Bank (2011) |
| (log) GDP per capita | Log of GDP per capita, PPP (constant 2005 international \$). | World Bank (2011) |
| Democracy dummy | Indicates whether multiple parties are legally allowed and exist outside the regime front, and whether the selection of the executive and the legislature involve an either direct or indirect mandate from an electorate. | Cheibub et al. (2009) |
| (log) migrant stock | Stock of migrants. | UNDP (2010) |
| Share of Catholics | Share of Catholics in overall population. | Encyclopedia Britannica Book (2001) |
| Regional dummies | Dummies for the regions East Asia dummy, Developing Europe, Latin America, Middle East and North Africa (MENA), South Asia and Sub-Sahara Africa. | World Bank (2010) |
| Media Freedom | Freedom of the Press Index. Score 0 (best) to 100 (worst). | Freedom House (2009) |
| Tourism inflows | Annual number of foreign visitors in a country. | World Bank (2011) |
| Share of Protestants | Share of Protestants in overall population. | Encyclopedia Britannica Book (2001) |
| Share of Muslims | Share of Muslims in overall population. | Encyclopedia Britannica Book (2001) |
| Urbanization | Share of a country's population living in cities. | World Bank (2011) |
| Trade (% of GDP) | Trade in percent of GDP. | World Bank (2011) |
| Prosecution index | Index assessing the level of governmental efforts to punish and prosecute traffickers and other related offenders (such as employers of trafficking victims, law enforcement officials who collude with traffickers, and clients of services provided by human trafficking victims). | Cho et al. (2011) |
| Protection index | Index assessing the level of governmental efforts to protect and assist the victims of human trafficking. | Cho et al. (2011) |
| Prevention index | Index assessing the level of governmental efforts to prevent and combat human trafficking. | Cho et al. (2011) |
| Right government | The share of right-wing governments in power over the 1990-95 period. | |
| Unemployment, male | Unemployment, male (in percent of the male labor force). | World Bank (2011) |
| Unemployment, female | Unemployment, female (in percent of the male labor force). | World Bank (2011) |
| Employment, agriculture | Employment in agriculture (in percent of total employment). | World Bank (2011) |
| Literacy rate | Literacy rate, adult total (in percent of people ages 15 and above). | World Bank (2011) |
| Mortality rate | Mortality rate, under-5 (per 1,000). | World Bank (2011) |
| Visa restrictions | The number of foreign countries whose nationals need a visa to enter the country under observation (in 2004). | Neumayer (2006) |
| Visa restrictions 2 | The number of foreign countries whose nationals need a visa to enter the country under observation (in 2004), counting visa provision at border as visa-free access. | Neumayer (2006) |
| Language dummies | Dummies for English speaking, French speaking, Spanish speaking, Portuguese speaking, and German speaking countries. | CIA (2010) |
| Legal origin dummies | Dummies for British, Socialist, French, German, and Scandinavian legal origin. | La Porta et al. (1998) |

EXHIBIT 3

Crysta N. Price, Terry D. Clark, & Julie Faller, Nevada's Online Commercial Sex Market, HUMAN TRAFFICKING INITIATIVE, CREIGHTON UNIVERSITY (2017), https://awakenreno.org/wp-content/uploads/2018/05/FINAL_Nevada_March2018.pdf

EXHIBIT 3

The Human Trafficking
Initiative

Data Science Lab
Creighton University
Omaha, NE 68178

Nevada's
Online
Commercial
Sex Market

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The Human Trafficking Initiative (HTI)

The Human Trafficking Initiative (HTI) is supported by the Women's Fund of Omaha. The research of HTI is conducted in the Heider College of Business at Creighton University. Awaken, a Reno based anti-trafficking organization, commissioned this report.

HTI uses data science to collect, analyze and evaluate the scope of sex trafficking across the United States and to identify effective policy solutions. The research initiative is directed by Crysta N. Price (crystaprice@creighton.edu) and Terry D. Clark (tclark@creighton.edu). Julie Faller (JulieFaller@creighton.edu) is the Chief Social Scientist for HTI. She performed the majority of analysis for this report.

A Note on Terminology, Agency, & Exploitation in the Commercial Sex Industry

Throughout this report, individuals exchanging sex acts for something of value are referred to as **sex providers**. A sex act encompasses any sexual encounter with another person with the goal of sexual gratification, including but not limited to an erotic massage, stripping, and intercourse.

Sex providers have diverse experiences within the commercial sex industry, and the degrees of agency and exploitation they experience exist along a continuum. This continuum extends from those sex providers with full agency who voluntarily participate in the commercial sex industry to those who are victims of sex trafficking and have severely constrained agency. Even among independent sex providers, reasons to enter or stay in the industry are diverse and nuanced. For example, some independent sex providers exchange sex acts for basic survival needs (food, clothing, shelter, etc.).

The industry includes independent sex providers as well as those who are managed, trafficked, or facilitated by a third party. In this report, we refer to relatively formalized structures that sell multiple individuals for sex as **organizations** or **venues**. These can include legally licensed brothels, but also criminalized organizations selling sex such as escort agencies or massage parlors whose employees perform sex acts. We do not consider sex providers working together in groups or those controlled by a pimp to be sold through an organization.

Our use of the term sex provider is meant to act as an umbrella term that captures all of these diverse segments and experiences within the commercial sex industry.

Backpage & Sex Trafficking

This report is based on data leveraged from Backpage.com, a website similar to Craigslist, that accounts for 80% of online commercial sex advertising.¹ Backpage is a commercial sex market hub, where providers differ in the prices charged, their target buyers, working conditions, and, importantly, the risk of having been trafficked.

¹ AIM Group. 2013. Online Prostitution Ad-Revenue Crosses Craigslist Benchmark.

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Only some sex providers who advertise on Backpage have been trafficked; however, many adults and minors who have been trafficked have been advertised on Backpage.

Backpage does not technically allow advertisements of minors, however, 71% of child sex trafficking reports received by the National Center for Missing and Exploited are linked to ads on the site.² Additionally, the website itself turns in more than 400 potential ads of minors each month.³

While nearly all segments of the commercial sex industry can be found on Backpage, the website is not known to represent the very high-end of the market nor is it a popular hub for the male commercial sex market. As a result, the overwhelming majority of individuals in the analysis are women and girls. This does not imply that men and boys are not victims of sex trafficking.

Data Source & Methodology

Sex trafficking is embedded in the commercial sex market, much of which occurs online. Data in this report are derived from scraping 435 Backpage sites associated with particular cities or locales twice a day according to local time zones.

After scraping advertisements, we perform a number of steps designed to ensure that our data reflect the actual online commercial sex industry. First, we eliminate ads identified by our spam algorithm. These include ads that are unlikely to reflect a sex provider, such as those posted by anti-trafficking organizations to provide a hotline number for those needing assistance in leaving the industry.

To characterize each sex provider represented in an advertisement, we apply a wide variety of parsers we develop using natural language processing, keyword-extraction, and various machine learning methodologies. These parsers identify the provider's name, age, phone number, Backpage account, geographic location, and other syntax features. We leverage all of this engineered information to match each ad to a sex provider "profile," essentially pooling ads together that likely reflect a particular sex provider.

Matching ads to an individual sex provider is inherently complex, given that an individual's advertised phone number, provider name, images, and syntax often change. It is important, therefore, to keep in mind that all reported statistics are *estimations*.

Individuals often will post multiple ads in more than one city on the same day. When this happens, an algorithm is utilized to determine the city in which they likely worked. To avoid including the 'noise' in our analyses on

² Shesgreen, Deirdre. "Senators threaten sex ad website CEO with contempt." Available: www.usatoday.com/story/news/politics/2015/11/19/senators-threaten-sex-ad-website-ceo-contempt/76066726/.

³ Letter from NAAG to Samuel Fifer, Esq., Council for Backpage.com LLC (Sept. 16, 2011), available at <http://www.kirk.senate.gov/pdfs/naagbackpage.pdf>.

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commercial sex providers, we do not include any provider profiles with only a single advertisement in our analysis.

When reporting on demographics, travel, and risk information, we analyze a provider's entire advertisement profile to provide statistics that are indexed on individuals rather than advertisements.

In January 2017, Backpage shut down its "Adult" section, in which many sex services were advertised. Preliminary research indicates that many advertisers simply switched to other sections of the Backpage site, such as "Dating." To ensure that the shut down cannot affect the trends identified, this report uses data from 2016, before the Adult section was shut down.

Nevada's commercial sex market takes place within a unique context.

Nevada is the only location in the United States in which licensed and regulated brothels coexist alongside the criminalized commercial sex industry.

Nevada's particular policy landscape reflects the historical relationship between tourism and commercial sex work in the state. Commercial sex constituted an important means to cater to an expanding tourist market in Nevada in the early 20th century.⁴ But by the 1950s, brothel owners faced concerted opposition (led by resort-owners), which they sought to circumvent by obtaining licenses to operate legally.⁵ This opposition culminated in a 1971 state law that prohibited licensing "houses of prostitution" in counties with populations above a certain threshold.⁶

The law prohibiting licensed brothels in populous counties continues to shape the commercial sex market in Nevada today. Legal brothels operate only in relatively rural counties and are regulated by a patchwork of state, county and municipal laws.⁷

As exemplified by its well-known slogan "What happens here, stays here," Las Vegas markets itself to tourists as a place to freely indulge. However, no licensed brothels can operate within Clark County, which encompasses Las Vegas. Las Vegas does have a sizable and well-known sex industry, which includes both legal (e.g., strip clubs and outcall dancers) and criminalized (e.g., commercial sex) elements. Nonetheless, the city attempts to

⁴ Brents, B. G. (2016). Nevada's Regulated Brothels. The Oxford Handbook of the Economics of Prostitution.

⁵ Ibid.

⁶ NRS 244.345 Dancing halls, escort services, entertainment by referral services and gambling games or devices; limitation on licensing of houses of prostitution.

⁷ Brents, B. G. (2016). Nevada's Regulated Brothels. The Oxford Handbook of the Economics of Prostitution.

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control visible elements of the commercial sex industry, for example by reportedly enforcing stricter punishments for prostitution in areas closer to major resorts.⁸

Backpage hosts advertisements from sex providers working inside and outside of organizations. However, these advertisements are not directly comparable. This is because organizations – such as licensed brothels or criminalized escort agencies or massage parlors – frequently feature multiple individuals within a single advertisement. In contrast, those outside of organizations – such as independents and those working under pimps – rarely post ads featuring more than two individuals. Therefore, throughout the report we distinguish between organizations (e.g., licensed brothels and criminalized escort agencies) and individual sex providers.

Unless individuals sold through organizations also post their own advertisements, they will be undercounted by this report.

Because we can more accurately count the number of individuals sold outside of organizations, the figures in this report represent a lower bound on true size of the commercial sex industry in Nevada.

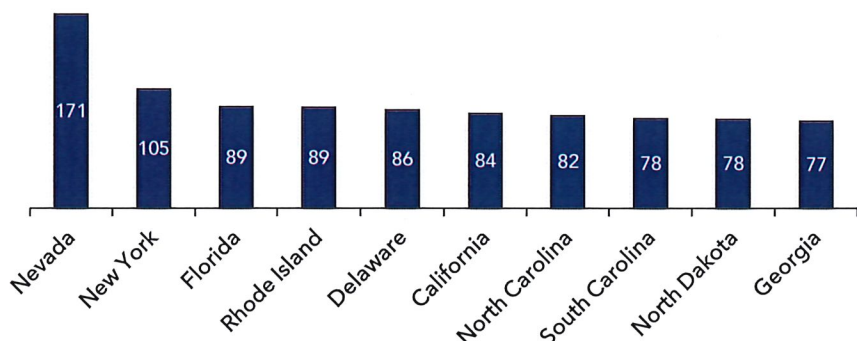
NEVADA IN CONTEXT

Nevada by the Numbers

Based on the number of unique sex providers⁹ advertising on Backpage, at least 5,016 individuals are sold for sex in an average month in Nevada.

This figure excludes organizations whose workers provide sex (e.g., brothels, escort agencies and massage parlors). Therefore, this number represents a lower bound on the overall number of individual sex providers within the state.

Top states: Unique monthly sex providers per 100K residents



⁸ Brents, B. G., & Sanders, T. (2010). Mainstreaming the sex industry: Economic inclusion and social ambivalence. *Journal of Law and Society*, 37(1), 40-60.

⁹ We define a unique sex provider as a person who has appeared in at least one Backpage ad in that state or city on a given day. Thus, we are counting the number of unique sex providers, not the number of ads posted.

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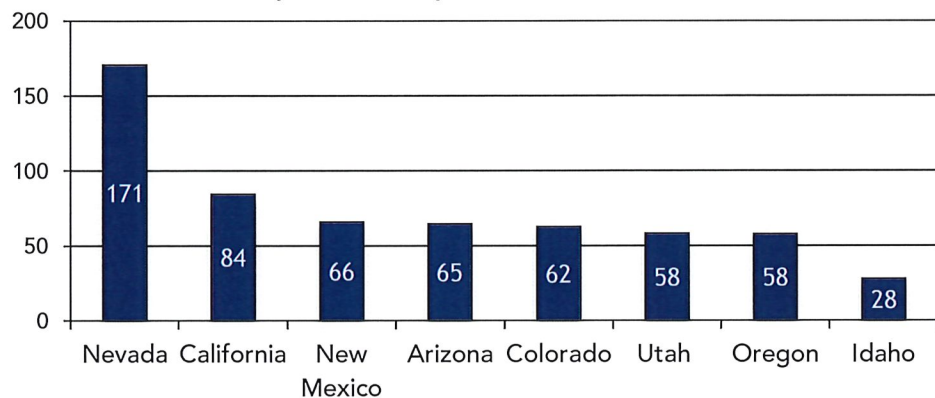
To understand how the size of Nevada's commercial sex market compares to that of other areas, the chart at the right shows the top ten states nationwide in terms of unique sex providers per 100,000 residents.

Adjusted for population, Nevada's commercial sex market is by far the largest of any state.¹⁰

In fact, Nevada's number of sex providers per capita is 63% larger than the next largest state of New York and nearly double the following state of Florida.

The large size of Nevada's commercial sex market is even starker compared to other Western states. In fact, Nevada has more than twice as many sex providers per 100,000 residents as California, the next largest per capita market in the region. Because tourism is so important in Nevada (as discussed

Western region: Unique monthly sex providers per 100K residents



later in the report), it might seem reasonable to believe that the large number of out-of-state tourists are driving the size of the market. Indeed, some sex providers' advertisements in Nevada suggest they seek to sell sex to tourists in particular. However, California receives more out-of-state tourists than Nevada. In 2016 about 67 million out-of-state tourists visited California,¹¹ whereas about 56 million visited Nevada in the same year.¹² This suggests that the sheer number of tourists cannot explain Nevada's uniquely large commercial sex market.

A Statewide Issue

Sex is being sold in each of the three Nevada Backpage markets: Elko, Reno and Las Vegas.

Among these three, Elko is unique in hosting licensed brothels. However, despite the existence of regulated brothels in the Elko area, individuals and unlicensed massage parlors also advertise on Elko's Backpage market. Legalized brothels and criminalized massage parlors often post single advertisements featuring multiple sex providers, whereas ads for individual sex providers typically feature just one or two individuals. This difference in

¹⁰ Washington, DC has more monthly unique providers per 100,000 residents (approximately 447), but this is likely a product of the District proper's relatively low population compared to the metropolitan region which actually constitutes demand.

¹¹ Easter, Makeda, "California tourism industry grows for the 7th straight year, report says," Los Angeles Times. 9 May 2017.

¹² TravelNevada "Discover the Facts – Fourth Quarter, 2016," http://nvculture.org/travelnevadabiz/wp-content/uploads/sites/14/2017/03/DTF_2016_Q4.pdf

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online advertising makes it difficult to assess the relative size of the regulated and criminalized commercial sex markets in Elko. *However, it is clear that the regulated and criminalized commercial sex markets coexist even within the relatively low-population Elko-area.*

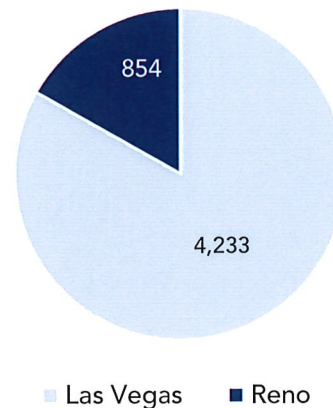
Because of the absence of licensed brothels, Reno and Las Vegas are more directly comparable markets.

*In absolute numbers, almost 5 times as many sex providers advertise monthly in Las Vegas as in Reno.*¹³

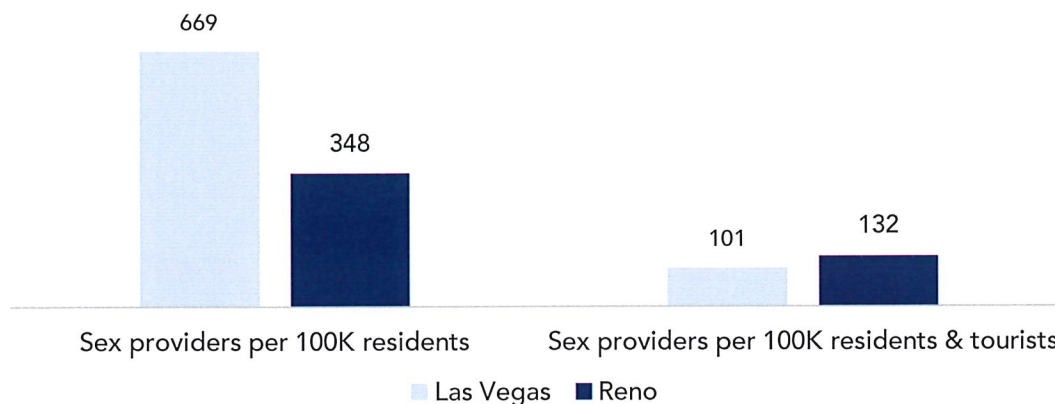
Since Las Vegas has a larger population than Reno, it is not surprising that it should dominate Reno in absolute numbers. Yet, even when adjusting for resident population, Las Vegas has nearly two times as many sex providers as Reno. This suggests that the tourists play a large role in the size of the commercial sex industry.

Since Las Vegas is known for its large number of tourist visitors, the population of the city can not only be thought of as its resident population. When one considers the population to consist of both the resident population and the tourist visitors, the ratio is flipped, with Reno having 1.3 times as many sex providers per person in Las Vegas.

Absolute number of sex providers advertised monthly



Monthly sex providers, per residents and tourists



When adjusted for numbers of tourists, there are more sex providers in Reno than in Las Vegas.

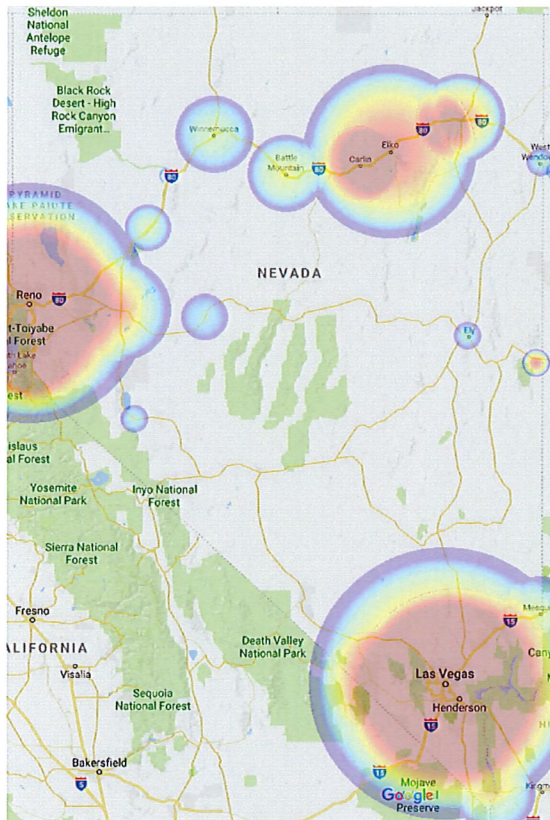
¹³ Note that these figures cannot be summed to get the total number of unique sex providers in Nevada. This is because the same sex provider may advertise in both Las Vegas and Reno (and indeed as shown later in the report, these markets have strong links).

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The commercial sex industry is embedded in Nevada's major population centers, but it extends out from these centers, particularly in the north of the state.

Nevada's Commercial Sex Market on Backpage



Sex providers advertising on Nevada's three Backpage sites may also indicate other towns or locations in the state they are willing to go to, often reflecting where the demand is.

As the heat map to the left indicates, *commercial sex is being advertised in many locations across the state*. The size of the circle represents the number of sex providers advertising the location, and the color indicates the intensity with which the location is advertised. The intensity is measured as the number of sex providers per capita of inhabitants.¹⁴

Not surprisingly, Las Vegas and Reno stand out. However, areas around Elko such as Carlin also stand out for the intensity of their advertising. Thus, commercial sex is not confined solely to the most populated areas.

To provide more detail on the geographic distribution of commercial sex activity, the next maps focus in on the Las Vegas and Reno areas.¹⁵ These maps represent the absolute counts of providers mentioning particular locations within the Las Vegas and Reno metropolitan areas. They thus show the distribution of commercial sex activity, without adjusting for population.

Within the Las Vegas area, there is an intense amount of commercial sex activity throughout the entire metropolitan area. Perhaps unsurprisingly, within Las Vegas, ads most

frequently mention The Strip. At an even more granular level, advertisements sometimes mention particular hotels and casinos within The Strip. For example, two particular hotels are the tenth and eleven most commonly mentioned locations in Las Vegas ads (just below "Downtown"). However, activity covers the entire metropolitan area – with providers specifically mentioning the south, north, southwest and northwest of the city. Indeed, for every 100 advertisements that mention The Strip, nearly 18 mention the more residential area of

¹⁴ This map includes sex providers working in organizations as well as outside of those organizations. A relatively small proportion of providers are sold through organizations in Reno and Las Vegas. However, omitting those sex providers from the Elko area would underrepresent the relative size of the commercial sex industry in that area. As noted, these figures may not be directly comparable. Therefore, more focus should be placed on the geographic distribution of the industry rather than the relative intensity of Elko vs. the other two Backpage sites.

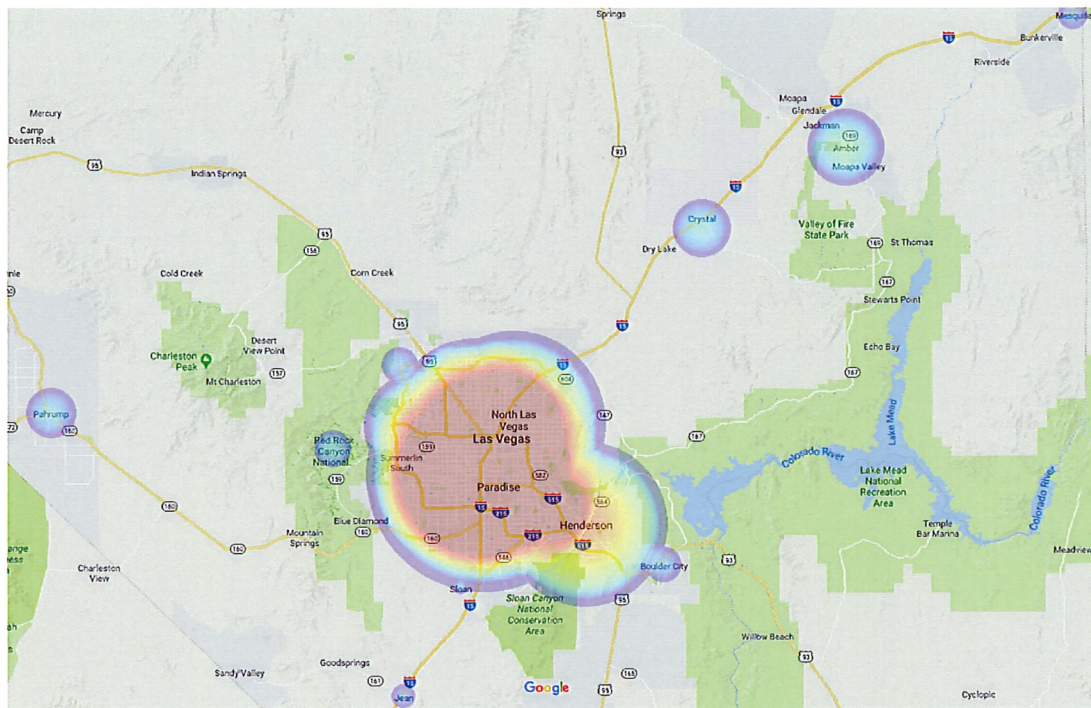
¹⁵ These maps exclude sex providers working in organized venues to allow more direct comparability.

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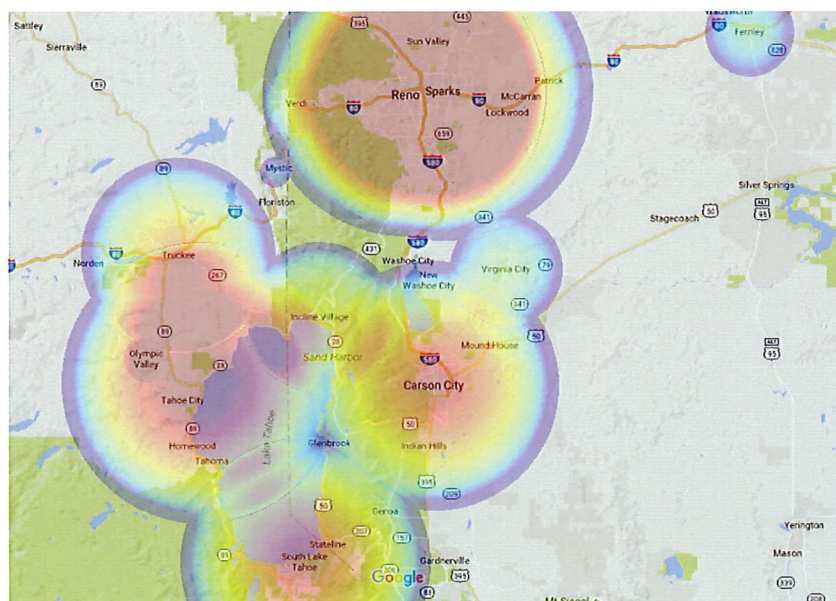
Henderson. While some locations outside of the Las Vegas metropolitan area do feature commercial sexual activity (e.g., Crystal and Amber), in general the activity in this region is geographically concentrated.

A Closer Look at the Las Vegas Area



A Closer Look at the Reno Area

Turning to the Reno area reveals a different picture of more diffuse activity. While there is strong commercial sex activity in the downtown Reno and Sparks area, individuals also mention areas throughout the region (such as Carson City, Tahoe and South Tahoe) at high rates. As discussed later in the report, the market within Reno operates as a regional hub with substantial overlap with markets throughout northern California in particular.



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Travel in Nevada's Commercial Sex Market

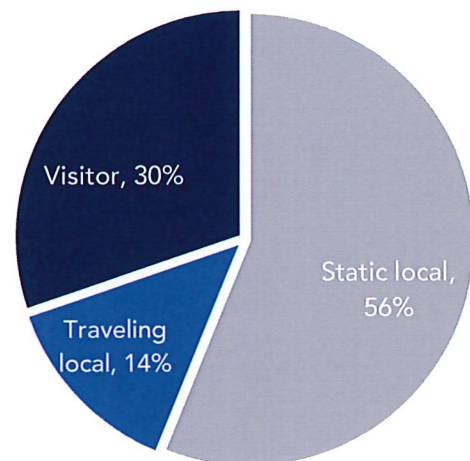
To understand travel within the commercial sex market, we call the city where a sex provider most frequently advertises her "base city (or state)" and assume she's a "visitor" when advertising in other areas. A slight majority (56%) of sex providers in Nevada only post advertisements within a single Nevada city. Nevada is very close to the median state of New Hampshire, where about 58% of providers only post in a single city.¹⁶

However, travel is still an important characteristic of the Nevada commercial sex market.

More than 30% percent of providers who advertise in Nevada are based in another state. When ranking all states in descending order of percent of sex providers based in another state, Nevada ranks 19th. This likely reflects a mixture of factors. Nevada's population base and the large number of tourists can both support local sex providers and provide the demand to

Where do they come from?

1. California, 55%
2. Arizona, 5%
3. Texas, 5%
4. Colorado, 4%
5. Florida, 3%

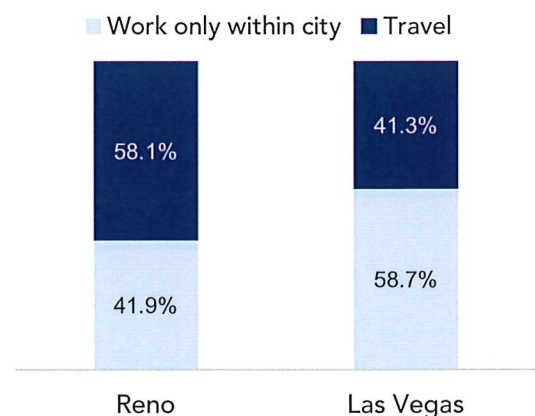


encourage out-of-state sex providers to visit. California is by far the most important source of sex providers visiting Nevada from another state. Nearly 55% of visitors come from California, whereas Arizona, as the next most important source, supplies only about 5% of visitors. Over the course of a year, visitors based in almost all states and the District of Columbia advertise in Nevada.

Many sex providers who are based in Nevada travel. Nearly 14% of those who advertise in Nevada have a home base within the state, but advertise across multiple cities or other states.

Moreover, the proportion of providers who travel is not uniform across the state. In cities with smaller populations, a larger proportion of providers travel. This reflects the desire for novelty on the part of buyers. The population of a large city can support enough sex providers to allow buyers to purchase sex with novel providers even if those providers do not travel. In smaller cities however, buyers may more quickly become familiar with available sex providers.

Percent of Sex Providers who Travel, by Site



¹⁶ In fact, Nevada ranks 30th of all the states and District of Columbia in terms of percentage of sex providers who stay within one city.

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Nevada reflects these trends. More than 58% of sex providers in Las Vegas are only advertised within that city. Conversely, only about 42% of sex providers in Reno are advertised exclusively in that city.¹⁷

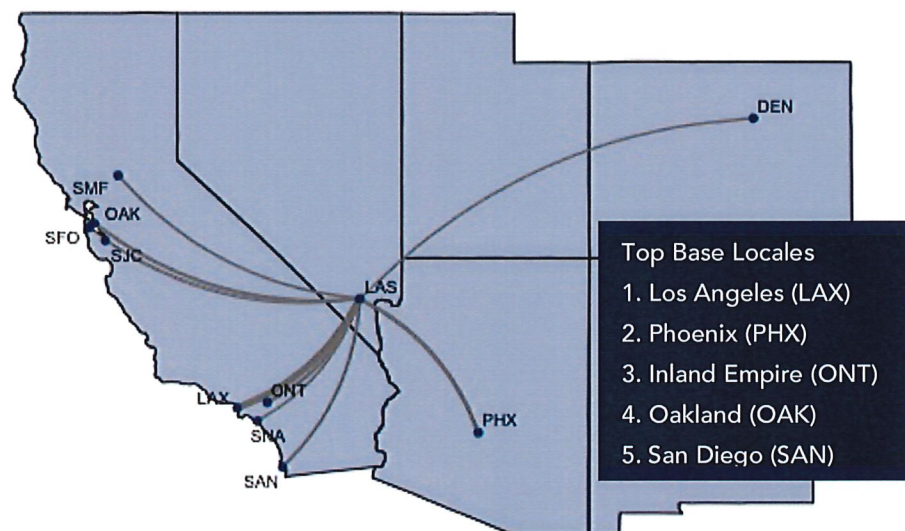
Regional Integration of the Nevada Commercial Sex Market

The travel patterns of sex providers in the markets of Las Vegas and Reno reflect overall regional patterns of integration.

Las Vegas is heavily tied to California, both in terms of the base cities of visitors to Las Vegas and in terms of the cities those based in Las Vegas visit. Furthermore, while Las Vegas has ties to northern California and major cities in other states, southern California is particularly well represented.

Top 10 Base Cities of Sex Providers Visiting Las Vegas

The map to the right shows the top ten base cities of visiting sex providers in Las Vegas, with the width of the curves between cities representing the proportion of providers visiting from each area. Three of the five top base cities are located in southern California.¹⁸

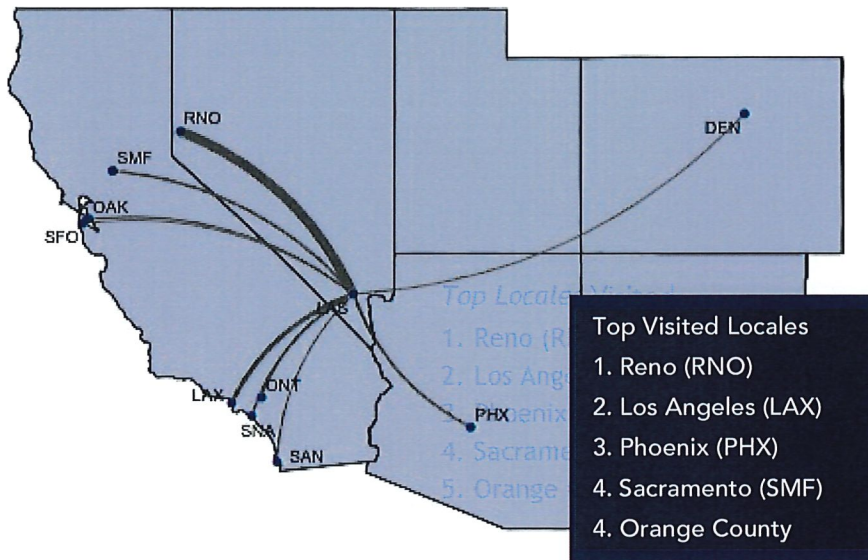


¹⁷ As in earlier sections of the report, we exclude Elko from this analysis because the presence of licensed brothels make it less comparable to the other two cities.

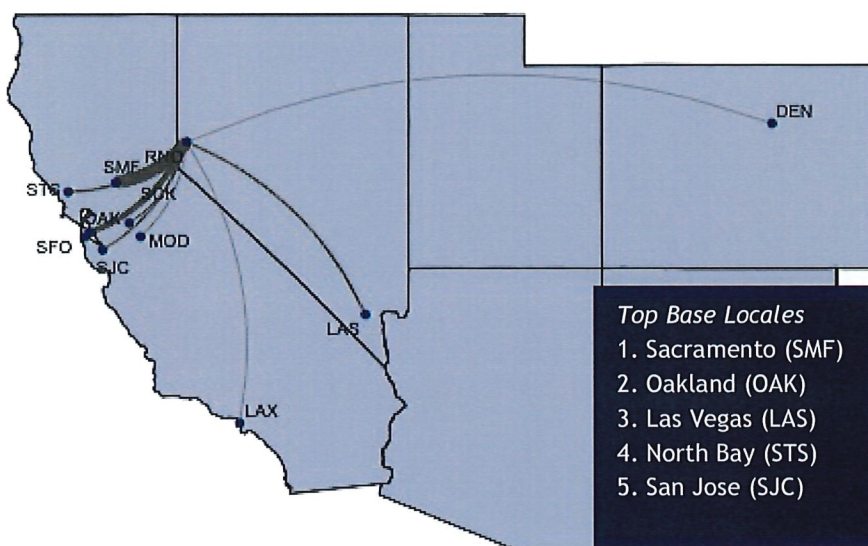
¹⁸ Backpage sites do not always correspond to recognized cities. For example, the "Inland Empire" site includes advertisements from across that southern California region, including Corona, Ontario, Riverside, San Bernadino. Similarly, Oakland is actually represented by a Backpage site labeled "East Bay."

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Top 10 Cities Visited by those Sold for Sex in Las Vegas

Examining the cities visited by those based in Las Vegas reveals a similar set of cities, but with a somewhat different distribution among those cities. For example, those with a home base in Las Vegas are most likely to visit Reno, showing that intra-Nevada travel exists despite the importance of out-of-state hubs.

Top 10 Base Cities of Sex Providers Visiting Reno

As the map to the left shows, compared with Las Vegas, the Reno market has a much stronger connection with northern California. Four of the five top home bases among sex providers who visit Reno are in northern California, with the other being Las Vegas.¹⁹

¹⁹ As noted, Backpage sites do not always correspond to recognized cities. The "North Bay" Backpage site includes advertisements from across that northern California area, including Napa, Santa Rosa, San Rafael and Vallejo.